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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/520,647	01/05/2005	Marie D'Angelo	434299-617	5196
46188	7590	07/21/2010	EXAMINER	
Nixon Peabody LLP P.O. Box 60610 Palo Alto, CA 94306			CHIU, TSZ K	
			ART UNIT	PAPER NUMBER
			2822	
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			07/21/2010	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/520,647	<b>Applicant(s)</b> D'ANGELO ET AL.	
	<b>Examiner</b> Tsz K. Chiu	<b>Art Unit</b> 2822	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 28 April 2010.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) 12-29 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)         | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)         | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Response to Arguments***

Applicant's arguments filed 4/28/10 have been fully considered but they are not persuasive. Applicant argues that Dujardin fails to disclose the nano wire is in a metallic state, however, in column 3, lines 31-36 shows that the wires are made of metallic material. Applicant argues the reference fails to disclose how to make the metallic wires, however, the patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. Applicant also argues that the reference fails to teach that the nano-objects are parallel in a metallic state. However, in figure 1 Dujardin shows the nano object 4 are formed parallel in a metallic state. Applicant further argue that reference Neuhaus did not disclose the nano-object. However, since the dimensions of the particles of Neuhaus are in the nanometers range, the particles are deemed a nano-object.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Dujardin et al. (6274234).

With respect to claim 1, Dujardin discloses nano-objects (4, For example Fig. 1), being characterized in that the nano-objects (4, For example Fig. 1) are in a metallic state (the nano-objects are formed by N atomic wires which have a metallic state, metallic state is define as a metal made of partly or entirely of metal, or having a characterize of metal), and are formed on the surface of a substrate (6, For example Fig. 1) made of a monocrystalline semiconducting material.

With respect to claim 2, Dujardin discloses the monocrystalline semiconducting material is chosen from among monocrystalline silicon carbide (column 2, lines 49-51), monocrystalline diamond, covalent monocrystalline semiconductors, and composite monocrystalline semiconductors.

With respect to claim 3, Dujardin discloses substrate (6, For example Fig. 1) is a monocrystalline substrate (6, For example Fig. 1) of silicon carbide (column 2, lines 49-51) in the cubic phase.

With respect to claim 4, Dujardin discloses the surface (2) is a cubic silicon carbide (column 2, lines 49-51) surface, rich in .beta.-SiC (100) 3.times.2 silicon.

With respect to claim 5, Dujardin discloses

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the nano-objects (4, For example Fig. 1) are three-dimensional clusters (for example fig. 5 shown a group of nano objects which are three dimensional) of the metallic element on the surface.

With respect to claim 6, Dujardin discloses

the clusters are distributed in an orderly manner on the surface and thus form a lattice of metal dots (shown in figure 5 or figure 7).

With respect to claim 7, Dujardin discloses

the surface is a cubic silicon carbide (column 2, lines 49-51) surface which is Si terminated,  $\beta$ -SiC(100)  $c(4 \times 2)$ , and the nano-objects (4, For example Fig. 1) are parallel atomic threads or parallel single-dimensional nanometric strips of the metal.

With respect to claim 8, Dujardin discloses

the surface comprises parallel atomic threads of Si, the atomic threads and single dimensional strips of the metal being perpendicular to these atomic threads of Si ("Si-Si dimmers", column 2, lines 49-51).

With respect to claim 9, Dujardin discloses

passivated areas and non-passivated areas and the nano-objects (4, For example Fig. 1) are formed on these non-passivated areas of the surface.

Claims 10-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Neuhaus et al. (6853087).

With respect to claim 10, Neuhaus discloses single dimensional nano-structure and quantum dots (218), characterized in that the nano-object are made essentially of a

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metals and are formed on the surface of a substrate made of a monocrystalline semiconducting material (column 28, lines 1-10), and the metal is chosen from the following group, jellium type metals, alkaline metals and transition metals (column 13, lines 21-38).

With respect to claim 11, Neuhaus discloses the metal is chosen from among sodium and potassium (column 13, lines 21-38).

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tsz K. Chiu whose telephone number is 571-272-8656. The examiner can normally be reached on 0800 to 1700.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Zandra V. Smith can be reached on 571-272-2429. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/M. Wilczewski/  
Primary Examiner, Art Unit 2822

/Tsz K Chiu/  
Examiner, Art Unit 2822